

## ABSTRACT

A system and method for identifying refrigerant-based air conditioning system component-mode failures to provide field technician assistance in diagnosis and repair. A multiplicity of measurement probes for system pressure, system temperature, ambient temperature, ambient relative humidity and refrigerant identification are utilized with a microprocessor unit and a Weighted Probability Inference Engine (WPIE) process. Measured parameters are stored during specific modes of air conditioning system operation and are compared to a stored database of failure modes to determine potential system component-mode failures and provide troubleshooting guidelines. Specific failure modes are displayed to the user through a variety of interface devices.

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